

SEQUENCE LISTING

<110> WALLACH, David
SCHUCHMANN, Marcus
GONCHAROV, Tanya

<120> Caspase-8 Interacting Proteins

<130> WALLACH=26

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<141> 2000-08-24

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<151> 1999-09-28

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<170> PatentIn Ver. 2.0

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<211> 447

<212> DNA

<213> Homo sapiens

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<210> 2

<211> 148

<212> PRT

<213> Homo sapiens

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Arg His Glu Gly Leu Gly Asn Gly Arg His Thr Leu Gly Gln Gln Glu
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Val Glu Val Asp Gly Leu Thr Ala Tyr Val Ala Gly Glu Arg Pro Asp
  20              25              30

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```

Pro Leu Gly Pro Arg Ser Gln Pro Ala Cys Gln Val Ala His Asp Pro
  35              40              45

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Pro Arg Ala Cys Pro Leu Cys Ser Gln Gly Thr Lys Thr Leu Ser Gly
  50              55              60

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Ser Ile Ala Pro Met Asn Val Cys Val Arg Ala Leu Pro Ala Gly His

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65 70 75 80
 Arg Phe Ser Met Lys Ser Ala Leu Lys Ala Ala Ser Leu His Pro Ala
 85 90 95
 Gln Leu Leu Gly Leu Glu Lys Ser Lys Gly Thr Leu Thr Leu Val Leu
 100 105 110
 Thr Gln Thr Ser Trp Cys Ser Thr Thr Pro Phe Thr Ser Arg Pro Pro
 115 120 125
 Thr Ser Arg Val Ser Trp Cys Gly Arg Arg Thr Gln Leu Gly Ser Asp
 130 135 140
 Lys Asp Leu Gly
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<210> 3
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| Ala Ala Ala Gly Leu Arg Ser Arg Ser Leu Pro Thr Arg Leu Thr Met | 20 | 25 | 30 |
| Arg Gly Asp Arg Ala Gly Gly Gly Pro Val Leu Gln Phe Thr Asn Cys | 35 | 40 | 45 |
| Arg Ile Leu Arg Gly Gly Lys Leu Leu Arg Glu Asp Leu Trp Val Arg | 50 | 55 | 60 |
| Gly Gly Arg Ile Leu Asp Pro Glu Lys Leu Phe Phe Glu Glu Arg Arg | 65 | 70 | 75 |
| Val Ala Asp Glu Arg Arg Asp Cys Gly Gly Arg Ile Leu Ala Pro Gly | 85 | 90 | 95 |
| Phe Ile Asp Val Gln Ile Asn Arg Gly Phe Gly Val Asp Phe Ser Gln | 100 | 105 | 110 |
| Ala Thr Glu Asp Val Gly Ser Gly Val Ala Leu Val Ala Arg Arg Ile | 115 | 120 | 125 |
| Leu Ser His Gly Val Thr Ser Phe Cys Pro Thr Leu Val Thr Ser Pro | 130 | 135 | 140 |
| Pro Glu Ala Tyr His Lys Val Val Pro Gln Ile Pro Val Lys Ser Gly | 145 | 150 | 155 |
| Gly Pro His Gly Ala Gly Val Leu Gly Leu His Leu Glu Gly Pro Phe | 165 | 170 | 175 |
| Ile Ser Arg Glu Lys Arg Gly Ala His Pro Glu Ala His Leu Arg Ser | 180 | 185 | 190 |
| Phe Glu Ala Asp Ala Phe Gln Asp Leu Leu Ala Thr Tyr Gly Pro Leu | 195 | 200 | 205 |
| Asp Asn Val Arg Ile Val Thr Leu Ala Pro Glu Leu Gly Arg Ser His | 210 | 215 | 220 |
| Glu Val Ile Arg Ala Leu Thr Ala Arg Gly Ile Cys Val Ser Leu Gly | 225 | 230 | 235 |
| His Ser Val Ala Asp Leu Arg Ala Ala Glu Asp Ala Val Trp Ser Gly | 245 | 250 | 255 |
| Ala Thr Phe Ile Thr His Leu Phe Asn Ala Met Leu Pro Phe His His | 260 | 265 | 270 |
| Arg Asp Pro Gly Ile Val Gly Leu Leu Thr Ser Asp Arg Leu Pro Ala | 275 | 280 | 285 |
| Gly Arg Cys Ile Phe Tyr Gly Met Ile Ala Asp Gly Thr His Thr Asn | 290 | 295 | 300 |
| Pro Ala Ala Leu Arg Ile Ala His Arg Ala His Pro Gln Gly Leu Val | 305 | 310 | 315 |
| | | | 320 |

Leu Val Thr Asp Ala Ile Pro Ala Leu Gly Leu Gly Asn Gly Arg His
 325 330 335
 Thr Leu Gly Gln Gln Glu Val Glu Val Asp Gly Leu Thr Ala Tyr Val
 340 345 350
 Ala Gly Glu Arg Pro Asp Pro Leu Gly Pro Arg Ser Gln Pro Ala Cys
 355 360 365
 Gln Val Ala His Asp Pro Pro Arg Ala Cys Pro Leu Cys Ser Gln Gly
 370 375 380
 Thr Lys Thr Leu Ser Gly Ser Ile Ala Pro Met Asn Val Cys Val Arg
 385 390 395 400
 His Phe Leu Gln Ala Thr Gly Cys Ser Met Glu Ser Ala Leu Glu Ala
 405 410 415
 Ala Ser Leu His Pro Ala Gln Leu Leu Gly Leu Glu Lys Ser Lys Gly
 420 425 430
 Thr Leu Asp Phe Gly Ala Asp Ala Asp Phe Val Val Leu Asp Asp Ser
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 Leu His Val Gln Ala Thr Tyr Ile Ser Gly Glu Leu Val Trp Gln Ala
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<210> 5
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 <212> DNA
 <213> Homo sapiens

<400> 5
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<210> 6

<211> 574

<212> PRT

<213> Homo sapiens

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Ser Glu Lys Pro Arg Leu Arg Gln Ile Pro Ser Ala Glu Asp Leu Glu
      20                      25                      30

```

```

Thr Asp Gly Gly Gly Pro Gly Gln Val Val Asp Asp Gly Leu Glu His
    35                      40                      45

```

```

Arg Glu Leu Gly His Gly Gln Pro Glu Ala Arg Gly Pro Ala Pro Leu
    50                      55                      60

```

```

Gln Gln His Pro Gln Val Leu Leu Trp Glu Gln Gln Arg Leu Ala Gly
    65                      70                      75                      80

```

```

Arg Leu Pro Arg Gly Ser Thr Gly Asp Thr Val Leu Leu Pro Leu Ala
      85                      90                      95

```

```

Gln Gly Gly His Arg Pro Leu Ser Arg Ala Gln Ser Ser Pro Ala Ala
    100                      105                      110

```

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Pro Ala Ser Leu Ser Ala Pro Glu Pro Ala Ser Gln Ala Arg Val Leu
    115                      120                      125

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Ser Ser Ser Glu Thr Pro Ala Arg Thr Leu Pro Phe Thr Thr Gly Leu
    130                      135                      140

```

```

Ile Tyr Asp Ser Val Met Leu Lys His Gln Cys Ser Cys Gly Asp Asn
    145                      150                      155                      160

```

```

Ser Arg His Pro Glu His Ala Gly Arg Ile Gln Ser Ile Trp Ser Arg
    165                      170                      175

```

```

Leu Gln Glu Arg Gly Leu Arg Ser Gln Cys Glu Cys Leu Arg Gly Arg
    180                      185                      190

```

```

Lys Ala Ser Leu Glu Glu Leu Gln Ser Val His Ser Glu Arg His Val
    195                      200                      205

```

```

Leu Leu Tyr Gly Thr Asn Pro Leu Ser Arg Leu Lys Leu Asp Asn Gly
    210                      215                      220

```

```

Lys Leu Ala Gly Leu Leu Ala Gln Arg Met Phe Val Met Leu Pro Cys

```

| | | | | | | |
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| Gly Gly Val Gly Val Asp Thr Asp Thr Ile Trp Asn Glu Leu His Ser | | | | | | |
| | | 245 | | 250 | | 255 |
| Ser Asn Ala Ala Arg Trp Ala Ala Gly Ser Val Thr Asp Leu Ala Phe | | | | | | |
| | | 260 | | 265 | | 270 |
| Lys Val Ala Ser Arg Glu Leu Lys Asn Gly Phe Ala Val Val Arg Pro | | | | | | |
| | | 275 | | 280 | | 285 |
| Pro Gly His His Ala Asp His Ser Thr Ala Met Gly Phe Cys Phe Phe | | | | | | |
| | | 290 | | 295 | | 300 |
| Asn Ser Val Ala Ile Ala Cys Arg Gln Leu Gln Gln Gln Ser Lys Ala | | | | | | |
| 305 | | 310 | | 315 | | 320 |
| Ser Lys Ile Leu Ile Val Asp Trp Asp Val His His Gly Asn Gly Thr | | | | | | |
| | | 325 | | 330 | | 335 |
| Gln Gln Thr Phe Tyr Gln Asp Pro Ser Val Leu Tyr Ile Ser Leu His | | | | | | |
| | | 340 | | 345 | | 350 |
| Arg His Asp Asp Gly Asn Phe Phe Pro Gly Ser Gly Ala Val Asp Glu | | | | | | |
| | | 355 | | 360 | | 365 |
| Val Gly Ala Gly Ser Gly Glu Gly Phe Asn Val Asn Val Ala Trp Ala | | | | | | |
| | | 370 | | 375 | | 380 |
| Gly Gly Leu Asp Pro Pro Met Gly Asp Pro Glu Tyr Leu Ala Ala Phe | | | | | | |
| 385 | | 390 | | 395 | | 400 |
| Arg Ile Val Val Met Pro Ile Ala Arg Glu Phe Ser Pro Asp Leu Val | | | | | | |
| | | 405 | | 410 | | 415 |
| Leu Val Ser Ala Gly Phe Asp Ala Ala Glu Gly His Pro Ala Pro Leu | | | | | | |
| | | 420 | | 425 | | 430 |
| Gly Gly Tyr His Val Ser Ala Lys Cys Phe Gly Tyr Met Thr Gln Gln | | | | | | |
| | | 435 | | 440 | | 445 |
| Leu Met Asn Leu Ala Gly Gly Ala Val Val Leu Ala Leu Glu Gly Gly | | | | | | |
| | | 450 | | 455 | | 460 |
| His Asp Leu Thr Ala Ile Cys Asp Ala Ser Glu Ala Cys Val Ala Ala | | | | | | |
| 465 | | 470 | | 475 | | 480 |
| Leu Leu Gly Asn Arg Val Asp Pro Leu Ser Glu Glu Gly Trp Lys Gln | | | | | | |
| | | 485 | | 490 | | 495 |
| Lys Pro Asn Leu Asn Ser Ile Arg Ser Leu Glu Ala Val Ile Arg Val | | | | | | |
| | | 500 | | 505 | | 510 |
| His Ser Lys Tyr Trp Gly Cys Met Gln Arg Leu Ala Ser Cys Pro Asp | | | | | | |
| | | 515 | | 520 | | 525 |
| Ser Trp Val Pro Arg Val Pro Gly Ala Asp Lys Glu Glu Val Glu Ala | | | | | | |
| | | 530 | | 535 | | 540 |

Val Thr Ala Leu Ala Ser Leu Ser Val Gly Ile Leu Ala Glu Asp Arg
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Pro Ser Glu Gln Leu Val Glu Glu Glu Glu Pro Met Asn Leu
 565 570

<210> 7
 <211> 1428
 <212> PRT
 <213> Homo sapiens

<400> 7
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Thr Gly Arg Gly Ala Glu Arg Arg Pro Arg Pro Pro Asp Ser Ser Ala
 35 40 45

Glu Gly Asp Pro Gly Met Leu Lys Pro Cys Gly Cys Val Pro Ser Pro
 50 55 60

Gln Lys Val Ala Leu Lys Val Gly Ala Pro Phe Cys Thr Cys Gly Cys
 65 70 75 80

Phe Gln Arg Phe His Leu Pro Lys Ala Cys Pro Gly Gln Gln Gly Ser
 85 90 95

Pro Glu Ser Ala Arg Pro Arg Asn Arg Gln Pro Tyr Ala Thr Gln Asn
 100 105 110

Gly Pro Ala Pro Arg Pro Gln Val Leu Pro Gly Ser Ser Ser Arg Cys
 115 120 125

Cys His Gly Tyr Ile Cys Phe Leu Phe Asp Ser Ser Gln Thr Ala Glu
 130 135 140

Val Glu Val Gly Trp Gly Gly Asp Thr Gly Ser Gln Leu Arg Pro Leu
 145 150 155 160

Leu Arg Gly Ala Val Tyr Asn Ser Arg Met Trp Asp Ser Gln Lys Glu
 165 170 175

Asp Ser Lys Pro Asp Ile Leu Arg Leu Gln Asn Thr Gln Leu Phe His
 180 185 190

Ser Val Ser Leu Ser Thr Asp Gly Thr Gln Val Ser Pro Gly Ala His
 195 200 205

Tyr Cys Ser Pro Thr Gly Ala Gly Cys Pro Arg Pro Cys Ala Asp Thr
 210 215 220

Pro Gly Pro Gln Pro Gln Pro Met Asp Leu Arg Val Gly Gln Arg Pro

| | | | | | | |
|-----------------|---|-----|-----|-----|-----|-----|
| 225 | | 230 | | 235 | | 240 |
| Pro Val Glu Pro | Pro Pro Glu Pro Thr Leu Leu Ala Leu Gln Arg Pro | 245 | 250 | | 255 | |
| Gln Arg Leu His | His His Leu Phe Leu Ala Gly Leu Gln Gln Gln Arg | 260 | 265 | | 270 | |
| Ser Val Glu Pro | Met Arg Val Lys Met Glu Leu Pro Ala Cys Gly Ala | 275 | 280 | | 285 | |
| Thr Leu Ser Leu | Val Pro Ser Leu Pro Ala Phe Ser Ile Pro Arg His | 290 | 295 | | 300 | |
| Gln Ser Gln Ser | Ser Thr Pro Cys Pro Phe Leu Gly Cys Arg Pro Cys | 305 | 310 | | 315 | 320 |
| Pro Gln Leu Ser | Met Asp Thr Pro Met Pro Glu Leu Gln Val Gly Pro | 325 | 330 | | 335 | |
| Gln Glu Gln Glu | Leu Arg Gln Leu Leu His Lys Asp Lys Ser Lys Arg | 340 | 345 | | 350 | |
| Ser Lys Glu Val | Ala Thr Pro Ala Gln Pro Ser Pro Thr Ser Gln Val | 355 | 360 | | 365 | |
| Pro Ala Ala Ala | Cys Val Ala Cys Ala Val Ala Ser Ser Val Val Lys | 370 | 375 | | 380 | |
| Gln Lys Leu Ala | Glu Val Ile Leu Lys Lys Gln Gln Ala Ala Leu Glu | 385 | 390 | | 395 | 400 |
| Arg Thr Val His | Pro Asn Ser Pro Gly Ile Pro Tyr Arg Ser Gln Gly | 405 | 410 | | 415 | |
| Pro Cys Ser Gly | Gln Cys Pro Cys Ser Val Pro Thr Pro Leu Lys Gln | 420 | 425 | | 430 | |
| Pro Trp His Ser | Phe Cys Arg Thr Leu Glu Pro Leu Glu Thr Glu Gly | 435 | 440 | | 445 | |
| Ala Thr Arg Ser | Met Leu Ser Ser Phe Leu Pro Pro Val Pro Ser Leu | 450 | 455 | | 460 | |
| Pro Ser Asp Pro | Pro Glu His Phe Pro Leu Arg Lys Thr Val Ser Glu | 465 | 470 | | 475 | 480 |
| Pro Asn Leu Lys | Leu Arg Tyr Lys Pro Lys Lys Ser Leu Glu Arg Arg | 485 | 490 | | 495 | |
| Lys Asn Pro Leu | Leu Arg Lys Glu Ser Ala Pro Pro Ser Leu Arg Arg | 500 | 505 | | 510 | |
| Arg Pro Ala Glu | Thr Leu Gly Asp Ser Ser Pro Ser Ser Ser Ser Thr | 515 | 520 | | 525 | |
| Pro Ala Ser Gly | Cys Ser Ser Pro Asn Asp Ser Glu His Gly Pro Asn | | | | | |

| 530 | 535 | 540 |
|--|-----|-----|
| Pro Ile Leu Gly Ser Glu Ala Leu Leu Gly Gln Arg Leu Arg Leu Gln 545 550 555 560 | | |
| Glu Thr Ser Val Ala Pro Phe Ala Leu Pro Thr Val Ser Leu Leu Pro 565 570 575 | | |
| Ala Ile Thr Leu Gly Leu Pro Ala Pro Ala Arg Ala Asp Ser Asp Arg 580 585 590 | | |
| Arg Thr His Pro Thr Leu Gly Pro Arg Gly Pro Ile Leu Gly Ser Pro 595 600 605 | | |
| His Thr Pro Leu Phe Leu Pro His Gly Leu Glu Pro Glu Ala Gly Gly 610 615 620 | | |
| Thr Leu Pro Ser Arg Leu Gln Pro Ile Leu Leu Leu Asp Pro Ser Gly 625 630 635 640 | | |
| Ser His Ala Pro Leu Leu Thr Val Pro Gly Leu Gly Pro Leu Pro Phe 645 650 655 | | |
| His Phe Ala Gln Ser Leu Met Thr Thr Glu Arg Leu Ser Gly Ser Gly 660 665 670 | | |
| Leu His Trp Pro Leu Ser Arg Thr Arg Ser Glu Pro Leu Pro Pro Ser 675 680 685 | | |
| Ala Thr Ala Pro Pro Pro Pro Gly Pro Met Gln Pro Arg Leu Glu Gln 690 695 700 | | |
| Leu Lys Thr His Val Gln Val Ile Lys Arg Ser Ala Lys Pro Ser Glu 705 710 715 720 | | |
| Lys Pro Arg Leu Arg Gln Ile Pro Ser Ala Glu Asp Leu Glu Thr Asp 725 730 735 | | |
| Gly Gly Gly Pro Gly Gln Val Val Asp Asp Gly Leu Glu His Arg Glu 740 745 750 | | |
| Leu Gly His Gly Gln Pro Glu Ala Arg Gly Pro Ala Pro Leu Gln Gln 755 760 765 | | |
| His Pro Gln Val Leu Leu Trp Glu Gln Gln Arg Leu Ala Gly Arg Leu 770 775 780 | | |
| Pro Arg Gly Ser Thr Gly Asp Thr Val Leu Leu Pro Leu Ala Gln Gly 785 790 795 800 | | |
| Gly His Arg Pro Leu Ser Arg Ala Gln Ser Ser Pro Ala Ala Pro Ala 805 810 815 | | |
| Ser Leu Ser Ala Pro Glu Pro Ala Ser Gln Ala Arg Val Leu Ser Ser 820 825 830 | | |
| Ser Glu Thr Pro Ala Arg Thr Leu Pro Phe Thr Thr Gly Leu Ile Tyr | | |

| 835 | 840 | 845 |
|--|-----|-----|
| Asp Ser Val Met Leu Lys His Gln Cys Ser Cys Gly Asp Asn Ser Arg 850 855 860 | | |
| His Pro Glu His Ala Gly Arg Ile Gln Ser Ile Trp Ser Arg Leu Gln 865 870 875 880 | | |
| Glu Arg Gly Leu Arg Ser Gln Cys Glu Cys Leu Arg Gly Arg Lys Ala 885 890 895 | | |
| Ser Leu Glu Glu Leu Gln Ser Val His Ser Glu Arg His Val Leu Leu 900 905 910 | | |
| Tyr Gly Thr Asn Pro Leu Ser Arg Leu Lys Leu Asp Asn Gly Lys Leu 915 920 925 | | |
| Ala Gly Leu Leu Ala Gln Arg Met Phe Val Met Leu Pro Cys Gly Gly 930 935 940 | | |
| Val Gly Pro Leu Ala Thr Leu Ser Ala Phe Leu Ala Ser Leu Ala Pro 945 950 955 960 | | |
| Thr Val Pro Gln Gly Leu Ser Arg Val Ser Trp Gly Leu Lys Pro Pro 965 970 975 | | |
| Pro Gly Pro Asn Pro Lys Ser Arg Pro Ala Pro Cys Pro Trp Gly Pro 980 985 990 | | |
| Gly Arg Gly Val Gly Thr Thr Pro Leu Gly Pro Gly Ser Cys Val Lys 995 1000 1005 | | |
| Pro Trp Met Met Arg Ala Leu Thr Leu Ala Pro Gln Val Asp Thr Asp 1010 1015 1020 | | |
| Thr Ile Trp Asn Glu Leu His Ser Ser Asn Ala Ala Arg Trp Ala Ala 1025 1030 1035 1040 | | |
| Gly Ser Val Thr Asp Leu Ala Phe Lys Val Ala Ser Arg Glu Leu Lys 1045 1050 1055 | | |
| Asn Gly Phe Ala Val Val Arg Pro Pro Gly His His Ala Asp His Ser 1060 1065 1070 | | |
| Thr Ala Met Gly Phe Cys Phe Phe Asn Ser Val Ala Ile Ala Cys Arg 1075 1080 1085 | | |
| Gln Leu Gln Gln Gln Ser Lys Ala Ser Lys Ile Leu Ile Val Asp Trp 1090 1095 1100 | | |
| Asp Val His His Gly Asn Gly Thr Gln Gln Thr Phe Tyr Gln Asp Pro 1105 1110 1115 1120 | | |
| Ser Val Leu Tyr Ile Ser Leu His Arg His Asp Asp Gly Asn Phe Phe 1125 1130 1135 | | |

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 Phe Asn Val Asn Val Ala Trp Ala Gly Gly Leu Asp Pro Pro Met Gly
 1155 1160 1165
 Asp Pro Glu Tyr Leu Ala Ala Phe Arg Ile Val Val Met Pro Ile Ala
 1170 1175 1180
 Arg Glu Phe Ser Pro Asp Leu Val Leu Val Ser Ala Gly Phe Asp Ala
 1185 1190 1195 1200
 Ala Glu Gly His Pro Ala Pro Leu Gly Gly Tyr His Val Ser Ala Lys
 1205 1210 1215
 Cys Phe Gly Tyr Met Thr Gln Gln Leu Met Asn Leu Ala Gly Gly Ala
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 Val Val Leu Ala Leu Glu Gly Gly His Asp Leu Thr Ala Ile Cys Asp
 1235 1240 1245
 Ala Ser Glu Ala Cys Val Ala Ala Leu Leu Gly Asn Arg Val Asp Pro
 1250 1255 1260
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 Leu Ala Glu Leu Arg Leu Lys Asp Leu Gly Gly Thr Leu Pro His Arg
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 Gly Gln Ile Leu Gly Phe Arg Cys Gln Pro Gly Asp Leu Leu Leu Val
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 Leu Ala Ser Cys Pro Asp Ser Trp Val Pro Arg Val Pro Gly Ala Asp
 1380 1385 1390
 Lys Glu Glu Val Glu Ala Val Thr Ala Leu Ala Ser Leu Ser Val Gly
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 Ile Leu Ala Glu Asp Arg Pro Ser Glu Gln Leu Val Glu Glu Glu Glu
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 Pro Met Asn Leu
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<210> 8
 <211> 1200
 <212> PRT
 <213> Homo sapiens

<400> 8

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| Pro | Gln | Pro | Gln | Pro | Met | Asp | Leu | Arg | Val | Gly | Gln | Arg | Pro | Pro | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Glu | Pro | Pro | Pro | Glu | Pro | Thr | Leu | Leu | Ala | Leu | Gln | Arg | Pro | Gln | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | His | His | His | Leu | Phe | Leu | Ala | Gly | Leu | Gln | Gln | Gln | Arg | Ser | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | Pro | Met | Arg | Val | Lys | Met | Glu | Leu | Pro | Ala | Cys | Gly | Ala | Thr | Leu |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Ser | Leu | Val | Pro | Ser | Leu | Pro | Ala | Phe | Ser | Ile | Pro | Arg | His | Gln | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gln | Ser | Ser | Thr | Pro | Cys | Pro | Phe | Leu | Gly | Cys | Arg | Pro | Cys | Pro | Gln |
| | | | | 85 | | | | | 90 | | | | | | 95 |
| Leu | Ser | Met | Asp | Thr | Pro | Met | Pro | Glu | Leu | Gln | Val | Gly | Pro | Gln | Glu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gln | Glu | Leu | Arg | Gln | Leu | Leu | His | Lys | Asp | Lys | Ser | Lys | Arg | Ser | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Val | Ala | Thr | Pro | Ala | Gln | Pro | Ser | Pro | Thr | Ser | Gln | Val | Pro | Ala |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Ala | Cys | Val | Ala | Cys | Ala | Val | Ala | Ser | Ser | Val | Val | Lys | Gln | Lys |
| 145 | | | | | 150 | | | | 155 | | | | | | 160 |
| Leu | Ala | Glu | Val | Ile | Leu | Lys | Lys | Gln | Gln | Ala | Ala | Leu | Glu | Arg | Thr |
| | | | | 165 | | | | 170 | | | | | | 175 | |
| Val | His | Pro | Asn | Ser | Pro | Gly | Ile | Pro | Tyr | Arg | Ser | Gln | Gly | Pro | Cys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Gly | Gln | Cys | Pro | Cys | Ser | Val | Pro | Thr | Pro | Leu | Lys | Gln | Pro | Trp |
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| His | Ser | Phe | Cys | Arg | Thr | Leu | Glu | Pro | Leu | Glu | Thr | Glu | Gly | Ala | Thr |
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| Arg | Ser | Met | Leu | Ser | Ser | Phe | Leu | Pro | Pro | Val | Pro | Ser | Leu | Pro | Ser |
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| Asp | Pro | Pro | Glu | His | Phe | Pro | Leu | Arg | Lys | Thr | Val | Ser | Glu | Pro | Asn |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Leu | Lys | Leu | Arg | Tyr | Lys | Pro | Lys | Lys | Ser | Leu | Glu | Arg | Arg | Lys | Asn |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Pro | Leu | Leu | Arg | Lys | Glu | Ser | Ala | Pro | Pro | Ser | Leu | Arg | Arg | Arg | Pro |

| 275 | | | | | 280 | | | | | 285 | | | | | |
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| Ala | Glu | Thr | Leu | Gly | Asp | Ser | Ser | Pro | Ser | Ser | Ser | Ser | Thr | Pro | Ala |
| 290 | | | | | | 295 | | | | 300 | | | | | |
| Ser | Gly | Cys | Ser | Ser | Pro | Asn | Asp | Ser | Glu | His | Gly | Pro | Asn | Pro | Ile |
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| Leu | Gly | Ser | Glu | Ala | Leu | Leu | Gly | Gln | Arg | Leu | Arg | Leu | Gln | Glu | Thr |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ser | Val | Ala | Pro | Phe | Ala | Leu | Pro | Thr | Val | Ser | Leu | Leu | Pro | Ala | Ile |
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| Thr | Leu | Gly | Leu | Pro | Ala | Pro | Ala | Arg | Ala | Asp | Ser | Asp | Arg | Arg | Thr |
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| His | Pro | Thr | Leu | Gly | Pro | Arg | Gly | Pro | Ile | Leu | Gly | Ser | Pro | His | Thr |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Pro | Leu | Phe | Leu | Pro | His | Gly | Leu | Glu | Pro | Glu | Ala | Gly | Gly | Thr | Leu |
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| Pro | Ser | Arg | Leu | Gln | Pro | Ile | Leu | Leu | Leu | Asp | Pro | Ser | Gly | Ser | His |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | Pro | Leu | Leu | Thr | Val | Pro | Gly | Leu | Gly | Pro | Leu | Pro | Phe | His | Phe |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ala | Gln | Ser | Leu | Met | Thr | Thr | Glu | Arg | Leu | Ser | Gly | Ser | Gly | Leu | His |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Trp | Pro | Leu | Ser | Arg | Thr | Arg | Ser | Glu | Pro | Leu | Pro | Pro | Ser | Ala | Thr |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Ala | Pro | Pro | Pro | Pro | Gly | Pro | Met | Gln | Pro | Arg | Leu | Glu | Gln | Leu | Lys |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Thr | His | Val | Gln | Val | Ile | Lys | Arg | Ser | Ala | Lys | Pro | Ser | Glu | Lys | Pro |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Arg | Leu | Arg | Gln | Ile | Pro | Ser | Ala | Glu | Asp | Leu | Glu | Thr | Asp | Gly | Gly |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Gly | Pro | Gly | Gln | Val | Val | Asp | Asp | Gly | Leu | Glu | His | Arg | Glu | Leu | Gly |
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| His | Gly | Gln | Pro | Glu | Ala | Arg | Gly | Pro | Ala | Pro | Leu | Gln | Gln | His | Pro |
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| Gln | Val | Leu | Leu | Trp | Glu | Gln | Gln | Arg | Leu | Ala | Gly | Arg | Leu | Pro | Arg |
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| Gly | Ser | Thr | Gly | Asp | Thr | Val | Leu | Leu | Pro | Leu | Ala | Gln | Gly | Gly | His |
| | | | 565 | | | | | | 570 | | | | | 575 | |
| Arg | Pro | Leu | Ser | Arg | Ala | Gln | Ser | Ser | Pro | Ala | Ala | Pro | Ala | Ser | Leu |
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Ser Ala Pro Glu Pro Ala Ser Gln Ala Arg Val Leu Ser Ser Ser Glu
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 Thr Pro Ala Arg Thr Leu Pro Phe Thr Thr Gly Leu Ile Tyr Asp Ser
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 Val Met Leu Lys His Gln Cys Ser Cys Gly Asp Asn Ser Arg His Pro
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 Glu His Ala Gly Arg Ile Gln Ser Ile Trp Ser Arg Leu Gln Glu Arg
 645 650 655
 Gly Leu Arg Ser Gln Cys Glu Cys Leu Arg Gly Arg Lys Ala Ser Leu
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 690 695 700
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 Gly Val Gly Thr Thr Pro Leu Gly Pro Gly Ser Cys Val Lys Pro Trp
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 Val Thr Asp Leu Ala Phe Lys Val Ala Ser Arg Glu Leu Lys Asn Gly
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 Phe Ala Val Val Arg Pro Pro Gly His His Ala Asp His Ser Thr Ala
 835 840 845
 Met Gly Phe Cys Phe Phe Asn Ser Val Ala Ile Ala Cys Arg Gln Leu
 850 855 860
 Gln Gln Gln Ser Lys Ala Ser Lys Ile Leu Ile Val Asp Trp Asp Val
 865 870 875 880
 His His Gly Asn Gly Thr Gln Gln Thr Phe Tyr Gln Asp Pro Ser Val
 885 890 895

Leu Tyr Ile Ser Leu His Arg His Asp Asp Gly Asn Phe Phe Pro Gly
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 Ser Gly Ala Val Asp Glu Val Gly Ala Gly Ser Gly Glu Gly Phe Asn
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 Val Asn Val Ala Trp Ala Gly Gly Leu Asp Pro Pro Met Gly Asp Pro
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 Glu Tyr Leu Ala Ala Phe Arg Ile Val Val Met Pro Ile Ala Arg Glu
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 Phe Ser Pro Asp Leu Val Leu Val Ser Ala Gly Phe Asp Ala Ala Glu
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 Gly Tyr Met Thr Gln Gln Leu Met Asn Leu Ala Gly Gly Ala Val Val
 995 1000 1005
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 1090 1095 1100
 Lys Ile Pro Val Ser Asp Pro Gly Ser Asn Gly Glu His Pro Pro Val
 1105 1110 1115 1120
 Arg Gly Tyr Pro Leu Ser Pro Pro Asp Gly Ala Ser Arg Ala Tyr Gln
 1125 1130 1135
 Thr Val Ala Pro Gln Gly Lys Tyr Trp Gly Cys Met Gln Arg Leu Ala
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 Ser Cys Pro Asp Ser Trp Val Pro Arg Val Pro Gly Ala Asp Lys Glu
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 Glu Phe Gln Arg Gln His Glu Gln Leu Ser Arg Gln His Glu Ala Gln
 50 55 60
 Leu His Glu His Ile Lys Gln Gln Gln Glu Met Leu Ala Met Lys His
 65 70 75 80
 Gln Gln Glu Leu Leu Glu His Gln Arg Lys Leu Glu Arg His Arg Gln
 85 90 95
 Glu Gln Glu Leu Glu Lys Gln His Arg Glu Gln Lys Leu Gln Gln Leu
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 Lys Asn Lys Glu Lys Gly Lys Glu Ser Ala Val Ala Ser Thr Glu Val
 115 120 125
 Lys Met Lys Leu Gln Glu Phe Val Leu Asn Lys Lys Lys Ala Leu Ala
 130 135 140
 His Arg Asn Leu Asn His Cys Ile Ser Ser Asp Pro Arg Tyr Trp Tyr
 145 150 155 160
 Gly Lys Thr Gln His Ser Ser Leu Asp Gln Ser Ser Pro Pro Gln Ser
 165 170 175
 Gly Val Ser Thr Ser Tyr Asn His Pro Val Leu Gly Met Tyr Asp Ala
 180 185 190
 Lys Asp Asp Phe Pro Leu Arg Lys Thr Ala Ser Glu Pro Asn Leu Lys
 195 200 205
 Leu Arg Ser Arg Leu Lys Gln Lys Val Ala Glu Arg Arg Ser Ser Pro
 210 215 220
 Leu Leu Arg Arg Lys Asp Gly Pro Val Val Thr Ala Leu Lys Lys Arg
 225 230 235 240
 Pro Leu Asp Val Thr Asp Ser Ala Cys Ser Ser Ala Pro Gly Ser Gly
 245 250 255
 Pro Ser Ser Pro Asn Asn Ser Ser Gly Ser Val Ser Ala Glu Asn Gly
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 Ile Ala Pro Ala Val Pro Ser Ile Pro Ala Glu Thr Ser Leu Ala His

| 275 | | | | | 280 | | | | | 285 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Leu | Val | Ala | Arg | Glu | Gly | Ser | Ala | Ala | Pro | Leu | Pro | Leu | Tyr | Thr |
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| Ser | Pro | Ser | Leu | Pro | Asn | Ile | Thr | Leu | Gly | Leu | Pro | Ala | Thr | Gly | Pro |
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| Ser | Ala | Gly | Thr | Ala | Gly | Gln | Gln | Asp | Thr | Glu | Arg | Leu | Thr | Leu | Pro |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ala | Leu | Gln | Gln | Arg | Leu | Ser | Leu | Phe | Pro | Gly | Thr | His | Leu | Thr | Pro |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Tyr | Leu | Ser | Thr | Ser | Pro | Leu | Glu | Arg | Asp | Gly | Gly | Ala | Ala | His | Ser |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Pro | Leu | Leu | Gln | His | Met | Val | Leu | Leu | Glu | Gln | Pro | Pro | Ala | Gln | Ala |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Pro | Leu | Val | Thr | Gly | Leu | Gly | Ala | Leu | Pro | Leu | His | Ala | Gln | Ser | Leu |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Val | Gly | Ala | Asp | Arg | Val | Ser | Pro | Ser | Ile | His | Lys | Leu | Arg | Gln | His |
| | | | 405 | | | | | | 410 | | | | | 415 | |
| Arg | Pro | Leu | Gly | Arg | Thr | Gln | Ser | Ala | Pro | Leu | Pro | Gln | Asn | Ala | Gln |
| | | | 420 | | | | | 425 | | | | | 430 | | |
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| Lys | His | Lys | Gln | Gln | Phe | Gln | Gln | Gln | Gln | Leu | Gln | Met | Asn | Lys | Ile |
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| Ile | Pro | Lys | Pro | Ser | Glu | Pro | Ala | Arg | Gln | Pro | Glu | Ser | His | Pro | Glu |
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| Glu | Thr | Glu | Glu | Glu | Leu | Arg | Glu | His | Gln | Ala | Leu | Leu | Asp | Glu | Pro |
| | | | 485 | | | | | | 490 | | | | | 495 | |
| Tyr | Leu | Asp | Arg | Leu | Pro | Gly | Gln | Lys | Glu | Ala | His | Ala | Gln | Ala | Gly |
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| Val | Gln | Val | Lys | Gln | Glu | Pro | Ile | Glu | Ser | Asp | Glu | Glu | Glu | Ala | Glu |
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| Pro | Pro | Arg | Glu | Val | Glu | Pro | Gly | Gln | Arg | Gln | Pro | Ser | Glu | Gln | Glu |
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| Leu | Leu | Phe | Arg | Gln | Gln | Ala | Leu | Leu | Leu | Glu | Gln | Gln | Arg | Ile | His |
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| Gln | Leu | Arg | Asn | Tyr | Gln | Ala | Ser | Met | Glu | Ala | Ala | Gly | Ile | Pro | Val |
| | | | 565 | | | | | | 570 | | | | | 575 | |
| Ser | Phe | Gly | Gly | His | Arg | Pro | Leu | Ser | Arg | Ala | Gln | Ser | Ser | Pro | Ala |
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Ser Ala Thr Phe Pro Val Ser Val Gln Glu Pro Pro Thr Lys Pro Arg
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 Phe Thr Thr Gly Leu Val Tyr Asp Thr Leu Met Leu Lys His Gln Cys
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 Thr Cys Gly Ser Ser Ser Ser His Pro Glu His Ala Gly Arg Ile Gln
 625 630 635 640
 Ser Ile Trp Ser Arg Leu Gln Glu Thr Gly Leu Arg Gly Lys Cys Glu
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 Cys Ile Arg Gly Arg Lys Ala Thr Leu Glu Glu Leu Gln Thr Val His
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 Lys Leu Asp Ser Lys Lys Leu Leu Gly Ser Leu Ala Ser Val Phe Val
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Pro Thr Pro Leu Gly Gly Tyr Asn Leu Ser Ala Arg Cys Phe Gly Tyr
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Leu

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16